

STUDIES IN THE EUPATORIEAE (ASTERACEAE). XCII.

THE GENUS, TRICHOGONIA.

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Plumose pappus setae have been recognized as a primary characteristic of Trichogonia since the establishment of the group as a section of Kuhnia by Decandolle (1836). Gardner (1846) raised the group to generic rank and called attention to the hairy outer surface of the corollas, the subequal phyllaries, and in one case the long slender base of the achene. Asa Gray (1851) seems to have been the first to include species in Trichogonia that lacked hairs on the corolla, and Mattfeld included species having glabrous corollas and conical receptacles. B.L.Robinson (1913 p 438) called attention to related species lacking a pappus which he placed in the genus Alomia. In addition to these, our studies have encountered two species of "Eupatorium" having characters of Trichogonia. Certain adjustments in these concepts have been necessary to derive a natural and workable delimitation of Trichogonia.

Two features most prominent in the genus Trichogonia have been studied critically for our revision, the pappus and the hairs on the corolla. B.L.Robinson summarized the problem of the pappus when he monographed the genus Alomia. He knew that two of his species were really Trichogonia and not Alomia, and he knew that the pappus character did not work since some Trichogonia species were known to lack pappus on some achenes. Unfortunately, B.L.Robinson also knew the ramifications of any generic revisions in the Eupatorieae and he saved his energies for other efforts.

The species lacking hairs on the corolla are in no way so closely bound to the genus Trichogonia. In fact, these species form two very distinct groups, each differing by additional characters. The species once called Ageratum melissaefolium A.P.Decandolle differs not only by corolla pubescence but by a conical receptacle and by more wedge-shaped shortly fringed pappus setae, and we have placed it in a separate genus, Platypodanthera. The remaining species that we have seen which lack hairs on the corolla have totally cleft anther appendages and smooth or only

faintly ridged stems. We consider the last element to be more closely related to Trichogonia but best placed in a distinct genus Trichogoniopsis.

The resulting concept of Trichogonia is most like the earlier concept of Gardner, being sharply delimited by the presence of dense pilosity on the outer surface of the corolla lobes. The long bases of the achenes and plumose pappus setae are less definitive being absent in some Trichogonia species and present in some related genera. More definitive are the slightly to strongly papillose style branches and the usually very strong ribbing of the stems. Excluded are all species with conical receptacles and papillose inner surfaces of the corolla lobes. As defined the genus is "Gyptoid" in relationship but not as close to Ageratum as assumed in most previous studies.

Trichogonia (A.P.Decandolle) G.Gardner, Lond. Jour. Bot. 5: 459. 1846.

Erect herbs or subshrubs, sparsely branched stems terete with prominent longitudinal ridges, short pubescent with gland tipped hairs. Lower leaves often opposite, at least upper leaves usually alternate; petioles very short to very long, blades linear to broadly cordate, short pilose and densely glanduliferous below. Inflorescence laxely to densely cymose or corymbose; heads medium sized; phyllaries subimbricate, in 2-3 series, 13-25, oblong to spatulate with hairs and glands externally; receptacle plane to slightly convex. Flowers ca. 30-60 per head; corollas tubular below, variously expanded above, lobes broadly triangular, inner surface smooth with elongate cells and sinuose walls, outer surface densely hirsute with few glands; filaments inserted above middle of tube, collars usually rather narrow, cells with prominent annular thickenings, appendage slightly shorter to slightly longer than broad with rounded to retuse tip; style with base not thickened, glabrous; style branches linear or clubbed at tip, densely papillose or mamilliose; achene prismatic usually with long slender base, 5-costate with many sharp setae on ribs and faces; carpopodium a very small rim with 1-3 rows of small quadrate rather thick-walled cells; pappus with ca. 14-30 plumose setae or sometimes lacking.

Type species: Kuhnia arguta H.B.K.

Our present studies indicate that the genus contains the following 22 species.

- Trichogonia arguta (H.B.K.) Benth. & Hook.f. ex Klatt,
Engl. Bot. Jahrb. 8: 33. 1886. Colombia, Venezeula.
- Trichogonia attenuata Barroso, Arquiv. Jard. Bot. Rio
de Janeiro 11: 14. 1951. Brazil.
- Trichogonia campestris Gardn., Hook., Lond. Journ.
Bot. 5: 459. 1846. Brazil.
- Trichogonia capitata (Rusby) B.L.Robinson, Proc. Amer.
Acad. 47: 193. 1911. Bolivia.
- Trichogonia chodatii (Hass.) R.M.King & H.Robinson,
comb. nov. Eupatorium chodatii Hass., Fedde Rep.
Spec. Nov. 11: 169. 1912. Paraguay.
- Trichogonia cinerea (Benth. ex Baker) R.M.King & H.
Robinson, comb. nov. Alomia cinerea Benth. ex
Baker, Mart. Fl. Bras. 6(2): 191. 1876. Brazil.
- Trichogonia dubia (B.L.Robinson) R.M.King & H.Robinson,
comb. nov. Alomia dubia B.L.Robinson, Proc. Amer.
Acad. 42: 33. 1906. Brazil.
- Trichogonia fiebrigii Mattf., Notizbl. Bot. Gart.
Berlin 8: 450. 1923. Brazil, Paraguay.
- Trichogonia hassleri Mattf., Notizbl. Bot. Gart.
Berlin 8: 449. 1923. Paraguay.
- Trichogonia hirtiflora Schultz-Bip. ex Baker, Mart.
Fl. Bras. 6(2): 215. 1876. Brazil.
- Trichogonia laxa Gardn., Hook., Lond. Journ. Bot. 6:
435. 1847. Brazil.
- Trichogonia martii Baker, Mart. Fl. Bras. 6(2): 216.
1876. Brazil.
- Trichogonia menthaefolia Gardn., Hook., Lond. Journ.
Bot. 6: 434. 1847. Brazil.
- Trichogonia phlebodes (B.L.Robinson) R.M.King & H.Rob-
inson, comb. nov. Eupatorium phlebodes B.L.Robin-
son, Contr. Gray Herb. n.s. 100: 16. 1932.
Paraguay.
- Trichogonia podocarpa Schultz-Bip. ex Baker, Mart.
Fl. Bras. 6(2): 216. 1876. Brazil.

Trichogonia rhadinocarpa B.L.Robinson, Proc. Amer. Acad. 42: 36. 1906. Colombia, Venezuela.

Trichogonia rhodotricha Malme, Svensk. Vet.-Akad.Handl. Ser. III. 12(2): 30. 1933. Brazil.

Trichogonia salviaefolia Gardn., Hook., Lond. Journ. Bot. 5: 460. 1846. Brazil, Paraguay.

Trichogonia scabra Klatt, Arbeit Bot. Mus. Hamb. 3. 1890. Brazil.

Trichogonia spathulaefolia Mattf., Notizbl. Bot. Gart. Berlin 8: 445. 1923. Brazil.

Trichogonia villosa Schultz-Bip. ex Baker, Mart., Fl. Bras. 6(2): 213. 1876. Brazil.

Trichogonia zehntneri Mattf., Notizbl. Bot. Gart. Berlin 8: 446. 1923. Brazil.

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Decandolle, A.P. 1836. Ordo CII. Compositae. Prodr. Syst. Nat. 5: 4-695.

Gardner, G. 1846. Contributions towards a flora of Brazil, being the characters of several new species of Compositae, belonging to the tribe Eupatorieae. Hook., Lond. Journ. Bot. 5: 455-491.

Gray, Asa. 1851. Characters of a new genus of Compositae-Eupatorieae, with remarks of some other genera of the same tribe. Hook., Lond. Journ. Bot. 3: 223-225.

Robinson, B.L. 1913. Revisions of Alomia, Ageratum, and Oxylobus. Contr. Gray Herb. n.s. 42: 438-451.

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